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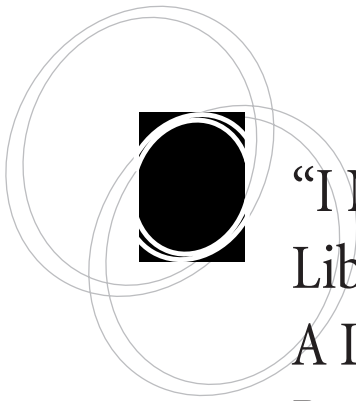
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Recommended Citation

Fleming-May, Rachel, Regina Mays, and Rachel Radom. "I Never Had to Use the Library in High School": A Library Instruction Program for At-Risk Students." *portal: Libraries and the Academy* 15, no. 3 (July 2015): 433-456.

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“I Never Had to Use the Library in High School”: A Library Instruction Program for At-Risk Students

Rachel A. Fleming-May, Regina Mays, and
Rachel Radom

abstract: Most academic library instruction is limited to one class period, despite empirical evidence that this approach is likely less effective than more sustained instruction. To determine if additional sessions would boost student learning and reduce library anxiety, the authors collaborated with representatives from a program for at-risk undergraduates to develop a three-workshop model for basic instruction and orientation. They first delivered the program during the summer of 2012 and subsequently offered it to three additional groups of students, including a cohort of doctoral students in the sciences. This article describes the process of designing the workshops and evaluating their effectiveness, with special attention to demonstrating how the program supported the parent institution's goals and mission.

Introduction

Today's institutions of higher education operate in an unprecedented environment of accountability and performance-based assessment, and academic libraries are called upon to demonstrate their contribution to the mission and goals of their parent institutions.¹ In the *Value of Academic Libraries* report she wrote for the Association of College and Research Libraries (ACRL), Megan Oakleaf urged academic librarians to focus assessment efforts on demonstrating the library's support for institutional goals such as “student enrollment, student retention and graduation rates, student success, student achievement, student learning, student engagement, faculty research productivity, faculty teaching, service, and overarching institutional quality.”²

portal: Libraries and the Academy, Vol. 15, No. 3 (2015), pp. 433–456.

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Developing assessment techniques that align with the goals of academic libraries' parent institutions was also a priority of the LibValue: Value, Outcomes, and Return on Investment of Academic Libraries project, of which the research described in this paper was a part. LibValue was a three-year National Leadership Research grant funded by the Institute of Museum and Library Services (IMLS) (grant # LG-06-09-0152-09). The study was Phase 3 of a series of return on investment (ROI) studies originating at the University of Illinois at Urbana-Champaign (UIUC) that measured the return on financial investment in the UIUC library in terms of successful grant applications.³ While the goal of the LibValue project was to expand this concept to all areas of the library, it quickly became apparent that a strict interpretation of ROI (as a monetary return on investment) would not be the most appropriate tool for measuring value in all areas of library services and resources, including library instruction.

LibValue was also guided by the goal of demonstrating a library's value to its parent institution by illustrating how the library supports the institution's mission and goals and by aligning assessment efforts in this direction. Keeping in mind that every institution has its own context, the research team carefully evaluated the environment at the University of Tennessee, Knoxville (UTK) to determine how the library might best support the priorities of the university. Several factors emerged as important. The first of these factors was the passage of the Complete College Tennessee Act of 2010, which instituted an outcomes-based funding formula, making the allocation of state funds contingent on demonstrable outcomes, including graduation rates. Another factor was a change in accreditation standards in 2011 by the university's accrediting body, the Southern Association of Colleges and Schools (SACS) Commission on Colleges, requiring assessment of student learning outcomes.⁴ But the most important factor to the direction of this study was the university's strategic plan. In January 2010, UTK accepted a challenge from the state to become a Top 25 public research university over the course of the next decade. The "Top 25 Initiative," as it came to be known, created a detailed road map of the university's priorities that the researchers capitalized upon to design this study.

Becoming a Top 25 university is an ambitious goal for an institution currently ranked in the mid-40s, but the administration of UTK has committed to this goal. As a first step, the university developed twelve metrics to measure progress toward the goal, two of which the research team identified as relevant to this study. The university

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sought to increase the first to second year undergraduate student retention rate by at least 6 percentage points (from 84 percent in 2010) and to boost the six-year graduation rate by 15 points (from 60 percent in 2010).⁵ It bears mentioning that a student's success is a complex, individualistic phenomenon, inevitably involving many personal and academic dynamics. Academic libraries

will never be the sole factor influencing student retention or graduation. However, might the library *contribute* to retention and student success? A review of the literature on student retention in higher education suggested one approach to the problem. Many of the elements affecting retention and persistence toward earning a degree fall outside



the realm of what the library or even the larger institution can affect, such as financial support, personal life issues, and social conditions. But there is one area that institutions *can* impact, which studies consistently show positively affects retention: student engagement.⁶

This research complemented the findings of a recent survey of students at UTK that found that when students leave the university permanently, 21 percent do so because they believe that they “didn’t fit in at UT.” Another 27 percent drop out permanently because “UT is too large,” and 21 percent withdraw due to the “pressure of school/stress.”⁷ In light of these findings, UTK Libraries decided to focus resources on student retention and graduation rates and, concurrently, to measure and demonstrate this contribution. The project described in this paper represents an attempt to develop a program specifically to both support these goals and to systematically assess the program’s success in so doing. To this end, the research team developed a workshop series to acclimate at-risk students to the library, to academic literature and research, and to their responsibilities as incipient members of the scholarly community.

In addition to improving students’ information literacy tools to contribute to their academic success, the research team decided that the workshop series should attend to students who feel overwhelmed by the size of the university. The team sought to assist these students by addressing library anxiety, demystifying the library and the research process, and helping students, particularly those deemed at-risk, feel at home in the library. The research team also focused on measuring the effectiveness of these efforts by designing assessment tools to provide data about participants’ pre- and post-workshop skills, knowledge, and attitudes.

Most academic library instruction is limited to a single class period, despite empirical evidence that this approach is likely less effective than more extensive models. To determine if a series of instructional sessions would have a more significant impact on student learning and reduce library anxiety, the Value, Outcomes, and Return on Investment of Academic Libraries (LibValue) Teaching and Learning team at UTK developed, tested, and refined a three-workshop model for delivering basic instruction and orientation. After piloting the workshops with a small group in the spring semester of 2012, the research team collaborated with representatives from the newly established Bridge program, which aimed to facilitate student transfers from community college to the university. The team and the Bridge program representatives designed a sequence of workshops that would deliver the content most needed by at-risk undergraduates. The investigators delivered the first full iteration of the model during the summer session of 2012 and subsequently offered it to three additional groups over the next year. In addition to repeating the workshops with the 2013 Bridge cohort, the team used the model with undergraduates enrolled in a career and personal development course and with a cohort of doctoral students in the sciences, for whom the basic curriculum was adapted and expanded. This article describes the process of designing the workshops, the tools used to evaluate them, and the impact of the sessions on the students who participated between 2012 and 2013.



Literature Review

Library Instruction Assessment

The volume of literature devoted to library instruction is significant. In 2002, Hannelore Rader reviewed the library and information science (LIS) literature published between 1973 and 2002 and found more than 5,000 publications on the topic.⁸ More recently, Sheril Hook estimated that nearly 20 percent of the articles published in *College & Research Libraries* during 2009, 2010, and 2011 were related to library instruction.⁹ Until recently, however, few authors discussed systematic attempts to assess the effectiveness of instruction or the impact of instruction on learning and student success beyond the short term. Tasked with providing more robust evidence of the library's contribution to student success, librarians have broadened their approach to assessment to include more and different types of data, including those related to overall student performance, such as grade point average (GPA) and progress toward degree. Although several studies have demonstrated correlative relationships between students' participating in library instruction and achieving academic success, it is far more difficult to prove that library instruction *causes* student success. Happily, researchers have accepted this challenge and are pursuing an ever-expanding array of strategies to demonstrate the value of academic library instruction.

Design of Library Instruction

While most library instruction is still conducted in the one-shot (or one class period) format, research has identified the shortcomings of this approach. According to Mar-

... one hour is simply not adequate for students to learn research skills, both in terms of the amount of content that can be conveyed and the complexity of the learning process.

garet Artman, Erica Frisicar-Pawlowski, and Robert Monge, the one-shot model of library instruction is "inefficient and inadequate"¹⁰ because it fails to provide "any meaningful sense of what it means to engage the complexity of scholarly research." Instead, the one-shot session imparts to students "just enough basic skill training for the student to find the 3–5 sources required to write their compo-

sition paper."¹¹ According to Yvonne Mery, Jill Newby, and Ke Peng, one hour is simply not adequate for students to learn research skills, both in terms of the amount of content that can be conveyed and the complexity of the learning process.¹²

Studies have also demonstrated that the opportunity to revisit and practice the instructional content over time enhances student recall of research techniques. In 2005, Smiti Gandhi identified five major drawbacks to the one-shot instruction session. First, the short time for instruction results in students' "information overload," which in turn has a negative effect on skills retention. Also, due to the short instruction period, librarians must rely on a lecture-based instructional model that requires students to be passive recipients of information rather than active participants in learning. This model requires that students proceed at the pace of the instructor rather than adjusting the speed



of learning to their own interest and ability level. Finally, the one-shot session model discourages meaningful collaboration between the librarian and course instructor.¹³

The major difference between the program designed for the Bridge participants and typical library instruction at UTK was duration. To convey a sufficient amount of information and enhance students' comfort with the library, the researchers believed it necessary to extend the typical "one-shot" library instruction session into a three-workshop series. While there is consensus that a multi-session instructional model is more effective both for transmitting information and for increasing students' comfort with the library,¹⁴ this format presents other challenges because it consumes significantly more resources than the one-shot session. For this reason, it can be difficult for librarians to schedule and conduct multiple instruction sessions for the same course. In light of these concerns, it is especially important to provide empirical evidence of how multiple instruction sessions improve student outcomes.

Instruction, Library Anxiety, and Student Retention

Library anxiety, first identified by Constance Mellon in 1986, affects individuals who believe their own research skills to be substandard, while those of their peers are adequate. This perception leads students to feel embarrassed and avoid seeking assistance lest their inadequacy be revealed.¹⁵ While there has been a significant amount of research assessing the increase in skill resulting from library instruction, there has been comparatively less exploration of the relationship

between students' participating in library instruction and the degree to which their anxiety toward research and using the library eases. Melissa Gross and Don Latham found that students' levels of library anxiety decreased as they attained information literacy skills.¹⁶ Anna Van Scoyoc discovered that the mode of instruction had an impact on library anxiety. Students who participated in face-to-face instruction sessions experienced a significant decrease

in library anxiety, but those who completed online tutorials did not; however, both groups experienced the same skill gains.¹⁷ Ann Goebel Brown, Sandra Weingart, Judith Johnson, and Betty Dance observed that incoming first-year students who participated in a library orientation session had a more significant reduction in library anxiety than students who attempted to find their own way.¹⁸

According to Qun Jiao, Anthony Onwuegbuzie, and Art Lichtenstein, library anxiety levels are highest during the student's first year of study and decrease gradually as the student progresses through the academic program.¹⁹ Is this trend true of students' other feelings of anxiety related to higher education? To date, no research has connected students' anxiety about using academic libraries with their level of concern about the university in general. In the absence of empirical evidence, intuition suggests that a university's library could influence a student's feeling that the university overall is "too large" or "impersonal."

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As concern about and awareness of student retention grows, the scholarly literature dealing with it has expanded to match. Much of the research related to retention focuses on the idea of "transition." According to Mark Palmer, Paula O'Kane, and Martin Owens, a significant number of studies have concentrated on five specific areas in which efforts to ease transition are suggested: (1) increasing student interaction with staff and the learning environment at large; (2) targeting recruitment efforts to ensure that students are well-matched to the institution in question; (3) increasing interaction between both student peer groups and upper-level students to foster a "sense of community"; (4) increasing interaction between students and faculty; and (5) emphasizing students' involvement with "university life" through coursework and other mechanisms.²⁰ While research indicates a positive relationship between psychological factors such as anxiety and attrition,²¹ no project to date has made a connection between library anxiety and student persistence. There is, however, a growing body of research that explores the relationship between library instruction initiatives and student success. Of these, most have connected students' participation in library initiatives (such as instruction) with measures of success such as grade point average (GPA)²² and retention.²³ Additionally, some of these efforts have focused specifically on instruction for students deemed at-risk.

At-Risk Students and Instruction

According to Timothy Quinnan, "pedagogues" define "at-risk" students as being "in danger of failing to pass required courses and navigate the prescribed curriculum."²⁴ Other indicators include low high school grade point average,²⁵ low scores on college entrance examinations,²⁶ and general unpreparedness for college-level work.²⁷ Increasingly, colleges and universities are instituting programs to remediate gaps in at-risk students' knowledge and skills, while providing a supporting environment to help acclimate them to higher education. Research has demonstrated that programs designed to increase study skills can have a significant positive impact on at-risk students' performance and retention.²⁸ In addition, at-risk students who participated in counseling had lower rates of attrition.²⁹

A growing body of research is investigating the role of library skills instruction in programs for at-risk students. While evaluating such a program at Long Island University in New York, Dona McDermott found that students who participated in multiple library instruction sessions performed better on an assessment survey than did those who attended only one session.³⁰ Ma Lei Hsieh, Susan McManimon, and Sharon Yang reported that students in an Educational Opportunity Program (EOP) showed improved information literacy skills after library research skills instruction.³¹ Fewer studies focus specifically on summer bridge programs, designed to ease the transition from high school to college. Such programs both acclimate students to campus and provide an opportunity to begin earning credits prior to the busy fall semester. Anne Barnhart and Andrea Stanfield reported on incorporating instruction into a Summer Transition Program at the University of West Georgia in Carrollton in 2013. While participation in the program was open to all incoming students, the curriculum was initially designed for at-risk students. As such, the librarians included activities designed "with the sole goal of being fun and making the students comfortable in the library."³² The authors reported



that anecdotal evidence indicated students considered the class beneficial. Approaching the topic from a slightly different perspective, Catherine Haras and Suzanne McEvoy described a library workshop they created for a summer bridge program staff.³³ Although both Barnhart and Stanfield's and Haras and McEvoy's studies explored participant opinion about the helpfulness of the programs, neither incorporates other measures of success, such as evidence of improved skills.

While the literature related to library instruction assessment is vast, none to date focuses on the goals we identified when designing our program. This paper simultaneously addresses three important issues in library instruction: structuring a multi-session instruction workshop, designing instruction specifically to support programs intended to increase the success of at-risk undergraduate students, and the potential for library instruction to reduce student anxiety and increase comfort with both the library and the larger institution of higher education.

Academic Libraries and Institutional Goals

In the past, academic libraries' efforts at assessing the efficacy of instruction tended to be "sporadic" and "disconnected."³⁴ However, according to Raynna Bowlby, academic librarians have become more aware of the importance of "integration and alignment—of the library with the parent institution, of planning with strategy, of assessment with planning, and of organizational development with assessment."³⁵ This understanding is evident in the literature. "The key," according to Brinley Franklin, "is to have library staff engaged in work that contributes to vital institutional outcomes such as student success and faculty research productivity."³⁶

In a helpful guide for academic libraries beginning the work of aligning their assessment efforts with the mission and goals of their parent institutions, Janet Cottrell points out, "Years ago, academic service units could simply state their aim to support the academic mission of their college or university. Today's climate of accountability and assessment requires a more meaningful connection."³⁷

Bowlby credits ACRL with "reframing the issues to transition libraries from being centered on the library to being centered on the institution's mission and the desired outcomes for students and faculty."³⁸ Indeed, the recent revision of the ACRL Standards states, "Libraries must demonstrate their value and document their contributions to overall institutional effectiveness and be prepared to address changes in higher education."³⁹ Brooke Stowe encourages academic libraries to "design and implement an 'organically' integrated outcomes assessment program—i.e., one that flows from and back to the larger, overarching mission and goals of its parent institution" to "realize enhanced internal purpose as well as external value."⁴⁰

Two recent publications offer creative approaches to demonstrating academic libraries' contributions to campus goals. Jon Hufford presents a framework for documenting how academic libraries contribute to the "campus culture for learning," a concept that encompasses skills acquisition as well as engagement and support.⁴¹ Maggie Kopp describes a program designed by librarians at the L. Tom Perry Special Collections Library of Brigham Young University in Provo, Utah, to support the university's "Aims of a BYU Education" during tours with prospective students.⁴²



About the Bridge Program and Library Sessions

In 2011, UTK initiated the Volunteer Bridge Program, a dual-enrollment program with nearby Pellissippi State Community College (PSCC), also in Knoxville. The Volunteer Bridge Program is an invitation-only living and learning community that gives approximately eighty students who are wait-listed for admission to UTK an opportunity to gradually transition from high school to a large public research institution. During the summer between high school graduation and the first year of college, participants live on the UTK campus and enroll in two courses at UTK. During the subsequent fall and spring, participants live on the campus and have access to campus resources, including the UTK Libraries' collections and services, but take courses at PSCC. After completion of the first year, students who have passed their courses and met other requirements are eligible for matriculation at UTK.

The Volunteer Bridge Program is one of several initiatives designed to address the undergraduate education priorities listed in the UTK Top 25 Action Plan, which include improving first-year retention rates. This priority is a response to the finding that UTK "loses more students after the first year than after the second and third years combined."⁴³ The action plan directs the university to "expand effective programs targeted at freshmen" with the aims of improving successful transitions to the university community and reducing the number of students who do not return after their first year.⁴⁴ The library has a role to play in retaining students—for instance, by hosting programs and providing collaborative study spaces, which may help students feel more connected to the campus community.

The library also contributes to another undergraduate focal point from the Action Plan, the priority of providing improved core student support services to increase the four-year graduation rate. This goal is especially relevant to the University of Tennessee (UT) Libraries because the majority of these support services, such as tutoring, are offered by partners in the library's Learning Commons.⁴⁵ So, while neither the Volunteer Bridge Program nor the UT Libraries are mentioned specifically in the Top 25 Action

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Plan, both groups provide services to undergraduate students that clearly relate to the university's goals of improving retention and graduation. Working together to advance these common points of action seemed efficient and reasonable.

With this in mind, the researchers approached Bridge Program administrators and course instructors with a plan to offer a series of library instruction sessions that

would both assist students in completing a common assignment and prepare them for the library research requirements that are typical of papers assigned to lower division university students. The Bridge Program intends to "bridge the learning opportunities at both campuses and connect [participants] with student life at UT, creating a living



and learning network to support seamless transition . . . [and] foster engagement and the sense of community that is crucial for a successful first-year experience." Accordingly, the sessions were primarily designed not only to introduce students to the library as a learning support center but also to acquaint them with the library's de facto function as a student social center, with its coffee shop, computer labs, and group study spaces.⁴⁶ In particular, the multi-session instruction workshop appealed to course instructors because it supported two specific Bridge learning outcomes, expecting students to "develop the academic skills and success strategies necessary for a successful college experience" and become "familiar with key support services at both PSCC and UT, and develop strategies for using those services most effectively." The workshops held in the library supplemented classroom instruction and introduced students to a wider academic community outside of the classroom walls.⁴⁷

While preliminary plans with the Volunteer Bridge Program were in development, researchers conducted a pilot of the three-session instruction series with a group of students enrolled in a supplemental, one-credit-hour first-year composition class at UTK. After the pilot, the research team fully implemented the workshop series in the three-credit-hour Bridge study skills course during the 2012 summer session. Each of the four class sections visited the library once a week for three consecutive weeks during their regular class meeting times. In addition to a lecture component, each session involved at least one group activity.

The first library session in summer 2012 included an introduction to research and what it means to be a member of the research community, including defining some of the jargon used scholarly publishing (such as the terms *journal* and *peer review*). Librarians then demonstrated basic library search skills, covering how to construct an effective search using keywords and Boolean operators; how to search for books in the online catalog; and how to navigate the library stacks. After a brief tour of help desks and study areas in the library, students worked in groups to find a book on a given topic in the catalog, published in the past five years, and then had to locate that book in the stacks and bring it to a library instructor. This session brought students' attention to the academic support units, such as tutoring centers and campus information technology services, that work within the library's Learning Commons, while also developing students' basic research skills.

The second week's session was divided into two separate topics. In the first half of the session, students examined a number of different publication types, including books, popular periodicals, and scholarly journals. In small groups, students completed a worksheet comparing these types of publications and listing differences among them. Discussions in the second half of this session focused on plagiarism. After defining plagiarism and its implications, librarians asked students to work together to determine whether samples of student papers were plagiarized. The examples of plagiarized and non-plagiarized work came from online tutorials from the University of Arizona Libraries in Tucson and the Indiana University School of Education in Bloomington that were expressly designed to help students identify plagiarism. In this session, the instructors reminded students of the university's honor statement regarding academic integrity and applied the students' skills of recognizing plagiarism to a number of situations mirroring research situations they would likely experience in the coming year.



The final instruction session focused on how to find sources and correctly cite those sources. The instructor introduced students to library databases, with a focus on how to search for scholarly journal articles related to an upcoming assignment on career choices. The session reiterated characteristics of a good search, taught in the first session, while showing some of the features of two multidisciplinary databases. The instructor discussed citation features within library databases, as well as the Online Writing Lab (OWL) website provided by Purdue University in Lafayette, Indiana, as tools that, when used in conjunction, can help students correctly cite their sources. The instructor also encouraged students to use Google Scholar after learning to set their library preferences in Google on their personal devices. Finally, students participated in a group activity to help them create a citation. With an appropriate example from Purdue's OWL website on the projection screen, each group received an envelope with all the elements of a citation for a particular article printed on a separate strip of paper. In teams, the groups found the article record in a database and then assembled each element of the bibliographic information, piece by piece, to create an accurate citation.

Each workshop was created to address research skills needed for an assignment in the study skills course. Over the summer, Bridge students also simultaneously enrolled in a General Education public speaking course at UTK. The learning objectives in the General Education speech class set the expectation that students "should be able to locate relevant information, evaluate its usefulness and quality, and incorporate the information logically and ethically in public address" by the end of the class.⁴⁸ The library workshops, focused on finding, evaluating, and citing sources, also prepared students for meeting several requirements in the General Education curriculum.

The 2013 Workshops

The Bridge Program instructors and administrators found enough value in the library sessions to include the three sessions in their study skills course once again in summer 2013. The topics covered in the sessions stayed largely the same, but the research team slightly altered and rearranged the in-class activities and organization of topics. The first session remained the same, but the team adjusted the second session, which originally focused on both differences among publication types (with a worksheet) and understanding plagiarism (in a group activity). The new session topics became finding articles in library subscription databases, domain searching in Google, and using Google Scholar, and a brief discussion of different document types (articles versus letters versus editorials), followed by a small group activity in evaluating sources. The third session, altered from the 2012 format, integrated article searching in library subscription databases with a citation activity intended to help students build an accurate citation. In 2013, this session centered on plagiarism (recognizing and identifying it via a group activity) as well as building a correct citation in a small group activity.

Assessment of the Sessions and Student Outcomes

Assessment was a key component of each instruction session. In addition to providing data to the library and the Volunteer Bridge Program staff, gathering assessment results



fulfilled an imperative from UTK's Top 25 Action Plan to collect and use data for decision-making and planning.⁴⁹ Each library session lasted 90 minutes, and at least 10 minutes of each session was used for a pretest or a posttest. In the first cohort, students completed a five-question pretest at the beginning of the first two library instruction sessions and a posttest in the last session. While the design of the sessions themselves did not change with subsequent cohorts, the approach to assessment changed slightly based on lessons learned from the first group. Specifically, the research team administered all the pretest questions during the first session, dropped some questions, and rephrased others. The team aggregated the data presented here for questions common to both iterations of the program administered to Bridge students. The team also filtered the responses to include only data from students who completed all assessment instruments.

To gauge their familiarity with academic libraries, the researchers asked students if they had ever visited a college or university library prior to their experience in the Bridge program. Of 138 students who answered the question, 79 percent had previously visited either the UTK Libraries or another college or university library.

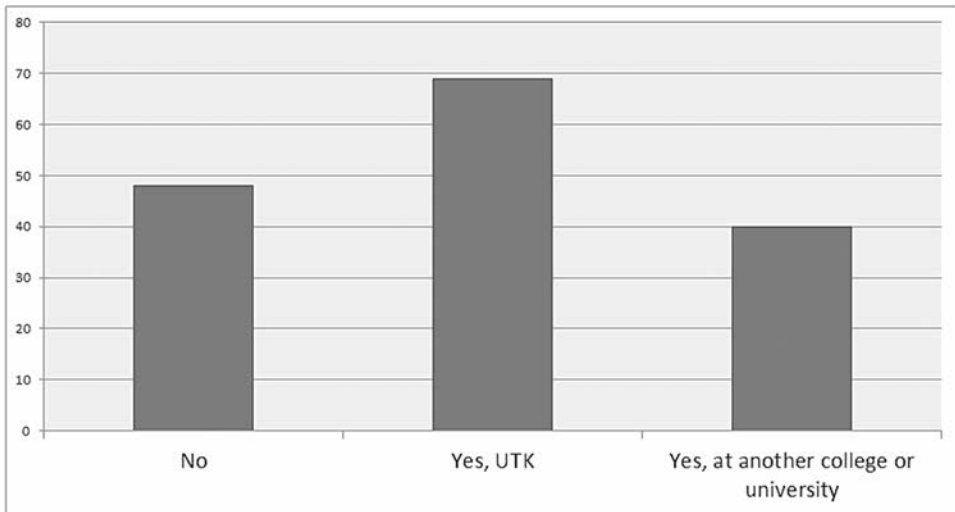


Figure 1. Responses to the question "Before this summer, had you ever visited a college or university library? (Check all appropriate answers.)" (N = 138)

On the pretest, the investigators asked students to assess their perceived skill and success in seeking and locating information using different tools and in a variety of settings. Seventy-five percent of students responded, "The public library often or almost always has the information I need," but only 46 percent of students felt this was the case regarding their high school library. While 80 percent of students reported that they are often or almost always successful in searching Google for information, 52 percent also said that they often or almost always need materials from sources other than Google when working on a research assignment. Only 18 percent of students felt that they often or almost always have difficulty finding good information, though 53 percent sometimes



do, and 64 percent find that researching a particular topic often or almost always takes more time than expected. Particularly significant for the goals of these workshops, 43 percent of respondents seldom or almost never ask a librarian for assistance during the research process, while another 31 percent sometimes do, leaving only 26 percent who somewhat regularly ask a librarian for assistance (Figure 2).

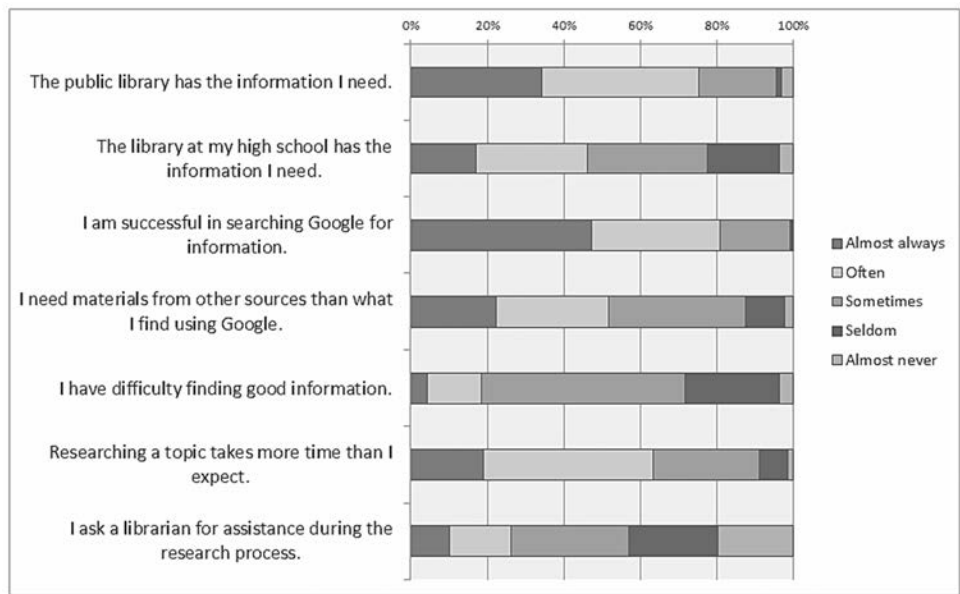


Figure 2. Responses to the question “When I’m writing research papers . . . (Mark one answer for each statement.)” (N = 138)

In terms of assessing students’ mastery of the actual content of the sessions, the pretests and posttests revealed some interesting trends. Several questions were designed to measure the actual skills of students. In general, students’ responses indicated that their grasp of factual content improved significantly. For example, prior to instruction

... the tasks related to properly citing and avoiding plagiarizing source material presented the most difficulty.

a majority of students (60 percent) knew that a book’s call number would help them locate the book in the stacks, but only 10 percent understood that the call number related to the book’s topic. Although still in the minority, post-instruction, 26 percent of students had become aware that a book’s call number and subject were connected.

Similarly, students demonstrated increased knowledge of effective search syntax. After a lesson about building database queries, 77 percent of students indicated that they would use the Boolean “AND” operator to build a search phrase, an improvement of over 200 percent (Figure 4).

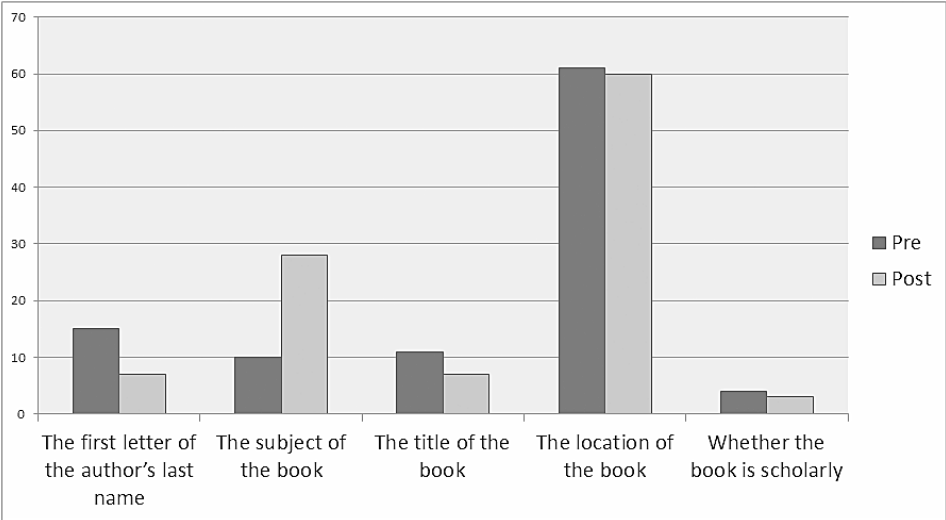


Figure 3. Responses to the question “The book *Raise the Roof: The Inspiring Inside Story of the Tennessee Lady Vols’ Undeclared 1997–98 Season* has the following Library of Congress call number: GV885.43. U58 S86 1998. What does a book’s call number help you determine? Check all that apply.” (N = 65)

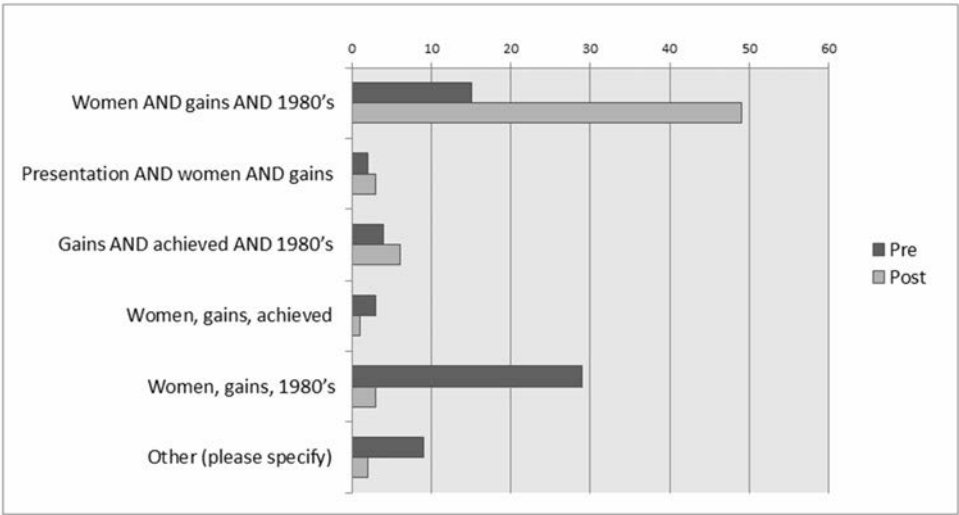


Figure 4. Responses to the question “Your teacher has asked you to prepare a presentation about the following topic: ‘The gains achieved by women in the 1980s.’ Which of the following options best describes the search terms that should be used to find information on this topic?” (N = 64)



On the other hand, the students’ understanding of more abstract, conceptual topics did not seem to increase across the board. Specifically, the tasks related to properly citing and avoiding plagiarizing source material presented the most difficulty. In their review of research related to plagiarism published in LIS-oriented and other higher education literature, Nancy Gibson and Christina Chester-Fangman, quoting an earlier study, said, “It takes a village to address plagiarism.”⁵⁰ According to 87 percent of the academic librarians responding to Gibson and Chester-Fangman’s survey, the academic library plays an integral role in educating students about proper citation and avoiding plagiarism.⁵¹ These are complex issues and skills; it is unsurprising that Bridge students could not completely master them even in the expanded time the workshops offered. One gain came in the number of students who correctly identified that paraphrasing a major point made in a source was an appropriate occasion for citation, with the percentage of correct answers increasing from 55 percent to 72 percent. There was also an improvement in the number of students who understood that common knowledge should not be cited (from 80 percent to 91 percent). It is worth noting, however, that several students acknowledged the instruction they received in proper citation and strategies for avoiding plagiarism in the final assessment tool, demonstrating that for better or for worse, these topics made an impression.

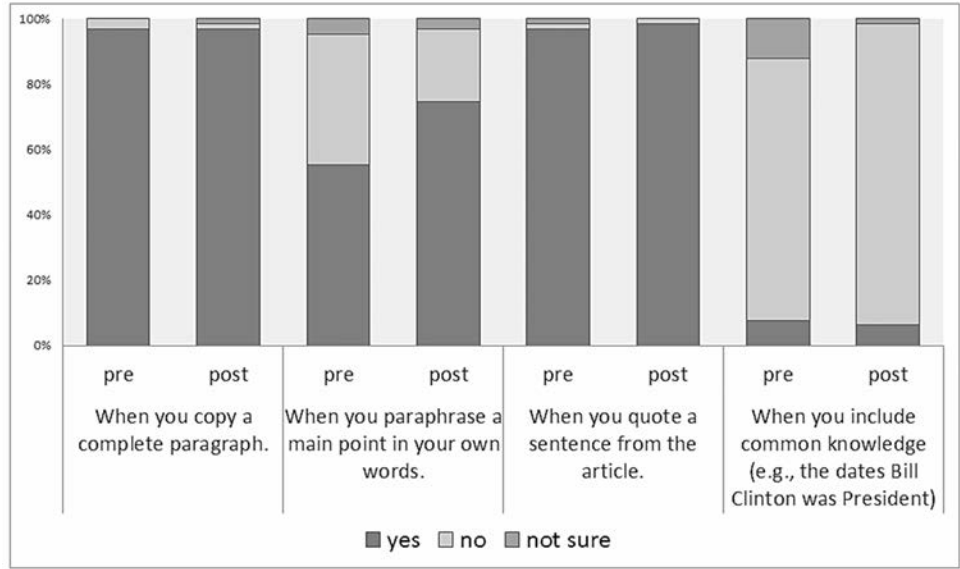


Figure 5. Responses to the question “You want to use some of the information found in a magazine article for your research paper. Are you required to cite your source in these situations? (Mark each ‘yes,’ ‘no,’ or ‘not sure’.)” (N = 65)



Another question presented a student paper excerpt and asked students to identify correct and complete source material citation. As figure 5 demonstrates, results were mixed. Post-instruction, more students recognized the need for adding quotation marks to a direct quotation, but on the same posttest, fewer students indicated that a direct quotation should include an in-text citation. In addition, the number of students erroneously indicating that the student paper excerpt presented in both the pretest and posttest was correct actually increased after instruction.

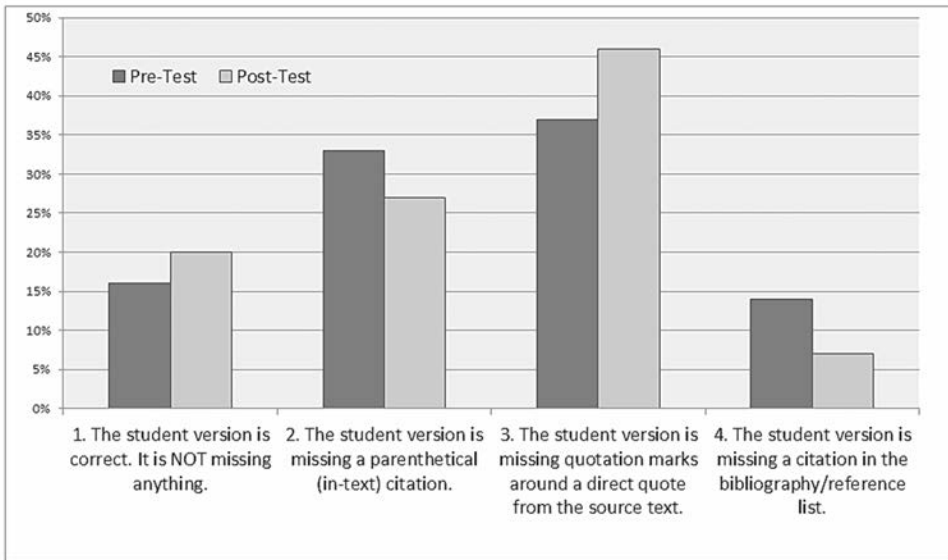


Figure 6. Responses when asked to identify attribution elements missing in a “student” paper excerpt. Options #2 and #3 are correct. (N = 65)

In addition to plagiarism and citation, questions related to differentiating scholarly from popular sources of information seem to have presented a challenge. After instruction, the number of students who identified that scholarly works have undergone peer review increased by 25 percent, and 16 percent acknowledged that authors at research universities typically write these works. Paradoxically, fewer students acknowledged that scholarly authors were likely to have a master’s or higher degree after instruction than before.

Realistically, the responses to this question indicate that improved understanding was modest; it is likely that additional instruction is necessary to clarify these concepts.

When prompted to select the “most appropriate” source for a research paper about hip-hop, students’ responses reinforced this gap in understanding. While the majority of students (58 percent) correctly identified the *International Journal of Cultural Studies* as the best source, that number did not increase after instruction. Rather, a small number

...questions related to differentiating scholarly from popular sources of information seem to have presented a challenge.

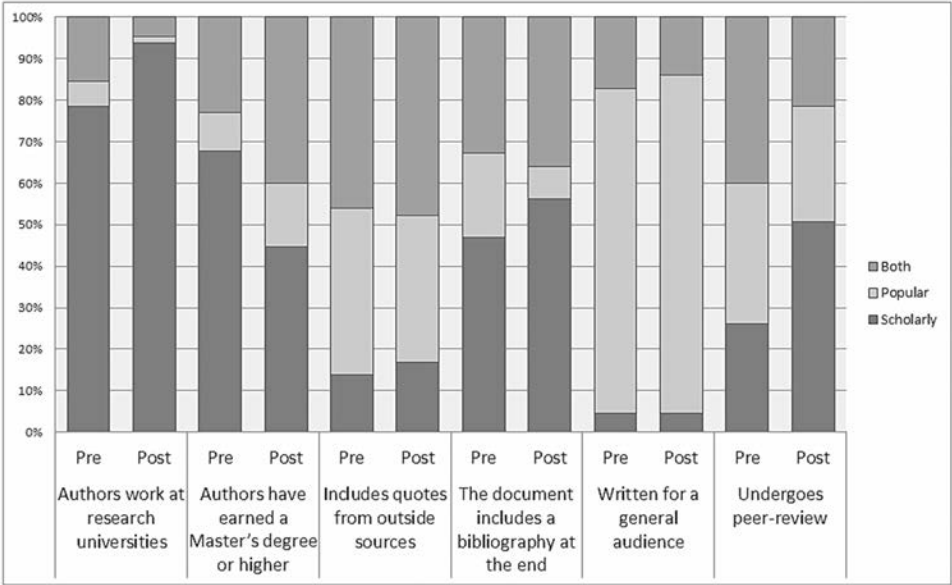


Figure 7. Responses to the questions “Which of these characteristics are true of SCHOLARLY sources? Which are true of POPULAR sources? Which apply to BOTH types of source?” (N = 65)

of students appear to have shifted their selection from one popular source to another; 31 percent still identified *Entertainment Weekly* as the best source for a research paper, down from 33 percent pre-instruction. Are these students primarily fixated on the subject of the research rather than on the type of resource? This is a question that bears further exploration.

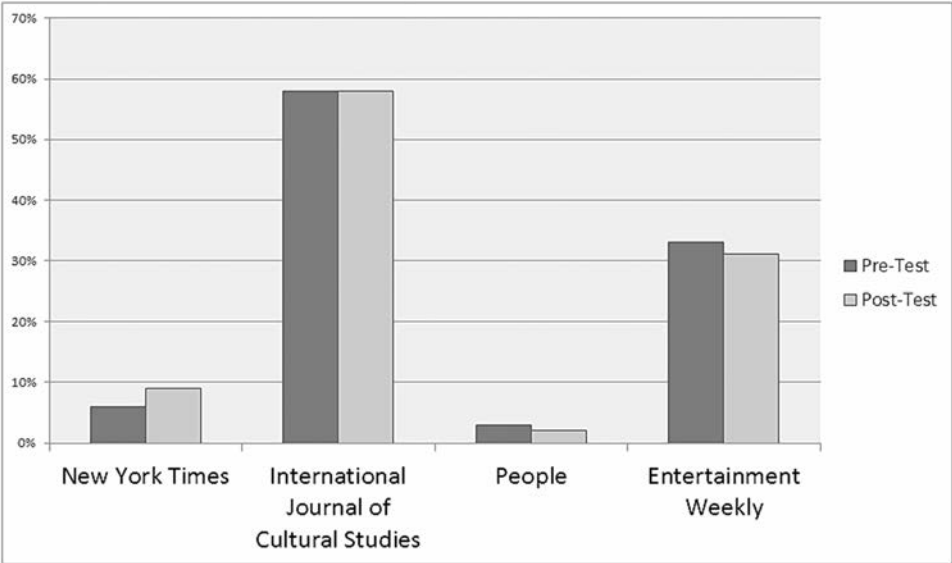


Figure 8. Responses to the question “You are doing research for a paper about the origins of hip-hop music. Which periodical (magazine, newspaper, or journal) is the most appropriate source for a college research paper?” (N = 65)



More promisingly, over 80 percent of students reported after instruction feeling that they would have less difficulty finding information, would find information in less time, and would be better at finding information using sources other than Google. Interestingly, although the pretests and posttests did not show an increase in some of the skills related to citation, 89 percent of students reported feeling that by participating in these workshops, they had gained a better understanding of how and why to cite sources.

In addition to teaching library and research skills, an important goal of this series of workshops was to increase students' familiarity with and comfort in the library, to decrease library anxiety, and to connect students with librarians. In this respect, the workshops were successful. The posttest found that 91 percent of students felt more comfortable in the John C. Hodges Library, the main library of UTK, after the workshops. Perhaps the biggest change was in the students' attitude toward asking a librarian for help. After the workshops, 81 percent of students reported being more likely to ask a librarian for assistance with research, an improvement over the 57 percent who claimed in the pretest to sometimes, often, or always ask a library for help during the research process.

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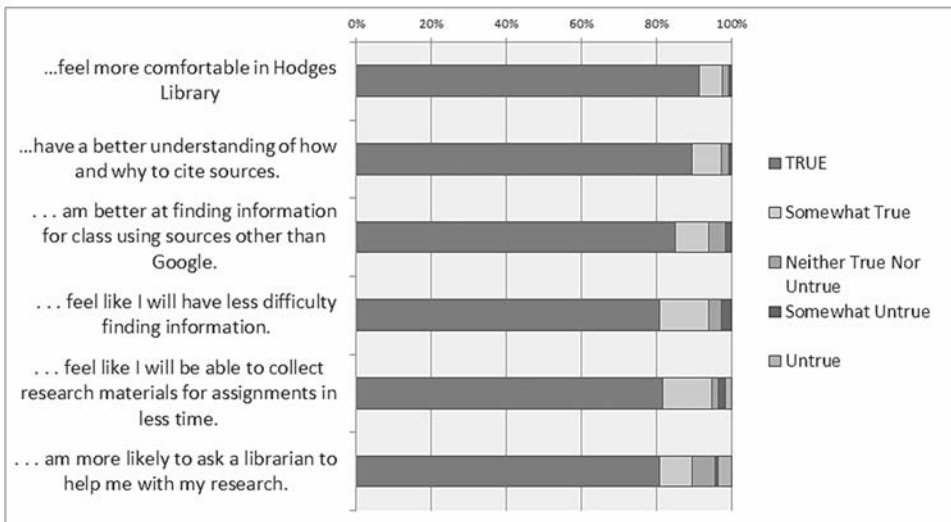


Figure 9. Responses to the question "Please select an answer for each question: 'After participating in these three library research workshops, I . . .'" (N = 120)

On a follow-up survey, administered six months after the original workshops for the 2012 cohort, 82 percent of respondents reported using the UTK Libraries in the previous semester to conduct academic research. This finding indicates students' comfort in using the library and their perception of the value of using library resources did improve.

The final assessment instrument, given at the end of the three sessions, asked students two open-ended questions about what they liked the most and the least about



the workshops. The resulting comments were qualitatively analyzed using basic coding procedures. While most comments were one sentence, or in some cases, only one word in length, some of the longer comments included multiple sentiments, and so received multiple codes.

A total of 99 students from all three groups responded to the first question: "What was the best part of participating in these workshops?" The majority of responses related to the general concept of learning. There were 41 such comments, including "Learning new ways to do things," "The information," or simply the single word, "Learning." In general, the participants felt they learned useful skills and information to help them succeed in research and writing, as expressed in the following comment: "I learned a lot of the topics for writing a proper paper and this is helpful because sometimes professors just expect you to know how to write their papers in the appropriate format."

Ten comments mentioned learning about the stacks, that is, how to locate a book in the library. Eight responses concerned learning to use the catalog. There were six comments about learning how to use databases, five relating to the website, one about search engines, and one about writing style. Interestingly, the majority of comments relating to positive learning were about citations, with twenty-seven comments on this subject.

Seventeen comments about what the students liked most related to teaching style, including nine remarks about the activities in the workshop, six about the instructor and her presentation style, and two about the group activities.

Eight comments spoke to becoming more familiar with and more comfortable in the library in general, and by inference, lessening library anxiety. These included, "This course has really helped me get more used to the library. I'm definitely more confident." Four respondents said that they got no benefit from the workshops.

A total of ninety-one participants responded to the question, "What part of these workshops did you like the least?" The majority of these comments related to course design and content. Thirty-nine comments related to general course design, with eleven responses expressing that the classes were boring or repetitive, eight remarks about the classes being too long (one comment said the classes were too short), three respondents who did not like the assessment quizzes, and two who felt the classes started too early in the morning. Other complaints with only one comment each included specific activities, the seating, working in groups, and the PowerPoint slides used in one of the classes.

Thirty-five comments pertained to workshop content, and the majority of them (19) related to the information on citations. Many students expressed that they felt the sessions covered material already familiar to them, echoing the student who wrote, "Some times [sic] it is things that I have already learned and it can be repetitive."

There were also comments about the distracting nature of the construction going on in the library during the first workshops. Some students indicated that while they did not particularly enjoy the classes, they did find them helpful, as typified by this student who reported not having liked "All of it" but conceded, "It really helped me." Twenty-two students (24 percent) reported that they had no complaints at all about the workshops.

Considering the difficulties that students had with the citation material, perhaps the most interesting finding is that the largest number of comments, both positive and negative, had to do with citations. Taken together (27 positive and 19 negative), there were 46 comments relating to citations. Positive comments indicate that the students



appreciated learning about a subject that they found challenging and relevant. For example, one said, "The best part of the workshops was learning how to cite better. I've always had difficulties citing." Another remarked, "I got to learn the differences between APA and MLA citations."

The material on citations seemed to inspire a sort of love/hate reaction, however, as reflected in such negative comments as:

"[I didn't like] being taught things I already knew about MLA and APA."

"I don't like citing things. It has never been a thing that interests me."

"Citations were difficult."

Did these comments stem from frustration with the library instruction, or with the difficulty of creating citations? Also notable was that the citation activity was the last activity done in the workshops before the posttest. The amount of feedback about citations may have resulted from the topic being at the forefront of students' minds, having just done a group activity on citations, but this hypothesis cannot be corroborated.

Further Implementation of the Model: PEER

In August 2012, the research team adapted the three-workshop model for a different group of students: participants in the Program for Excellence & Equity in Research (PEER). Funded by the National Institutes of Health (NIH), the purpose of PEER is to support doctoral students from groups underrepresented in the STEM (science, technology, engineering, and mathematics) fields. Working with this group afforded the research team an additional opportunity to address one of UTK's "Top 25" goals: supporting graduate students, particularly at the doctoral level. Specifically, the aspects of UTK's Top 25 Action Plan for graduate education that relate to PEER include recruiting students from diverse backgrounds, increasing financial support for graduate students, and expanding programs that support graduate student engagement and success.⁵² The team adjusted the sessions for PEER to be more appropriate for students with a higher skill level and in a specialized disciplinary area. In addition to an instruction librarian, two STEM-field subject specialist librarians taught the group how to use Web of Science and other specialized electronic resources. The sessions also included information about citation and plagiarism, as requested by PEER program administrators.

To assess the effectiveness of the sessions, we adapted and administered the Bridge program evaluation instruments. In addition to asking about specific resources and skills covered in the sessions, we asked general questions about participants' research process. Table 1 summarizes responses from the first assessment survey, administered prior to any instruction. Participants indicated feeling confident in their ability to locate appropriate research material for a project, and only one-third regularly consult a librarian for assistance with research.

Rather than focusing exclusively on the skills participants acquired through the workshops, assessments included questions to explore attitudinal changes resulting from the sessions. In the final survey administered at the end of the three sessions, a strong majority of participants indicated that they felt more comfortable in the library in which sessions were held (83 percent) and were more likely to consult a librarian for assistance (75 percent).

Table 1.

Mark one answer for each statement.

When I work on a research project, I . . . (N = 13)

	Almost always	Often	Sometimes	Seldom	Never
. . . talk to others about possible topics before making a final choice for a research paper.	4	3	5	1	0
. . . begin by conducting a review of the literature.	8	4	1	0	0
. . . have difficulty finding good information.	0	1	1	7	4
. . . am successful in searching Google for information.	7	4	1	1	0
. . . need materials from other sources than what I find using Google.	8	3	2	0	0
. . . always seem to spend more time than I expected researching a topic.	3	7	2	1	0
. . . become more interested in a topic as I gather information.	3	5	4	1	0
. . . take detailed notes from every source of information I look at.	5	3	2	3	0
. . . ask a librarian for assistance during the research process.	1	3	2	3	4

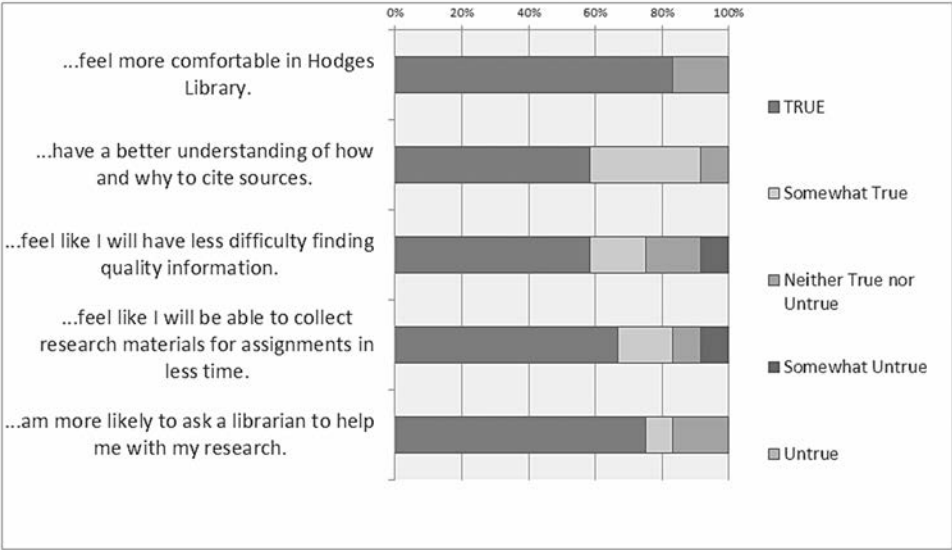


Figure 10. Responses to the question "Please select an answer for each question: 'After participating in these three library research workshops, I . . .'" (N = 13)



The response from both PEER participants and the program's administrators was overwhelmingly positive. Participants were especially pleased with the librarians' presentation about avoiding plagiarism in their own work and identifying it in their students' papers. While the number of participants in the PEER group was small, the overwhelmingly positive reception of the multi-session workshop indicates that adapting the sessions designed initially for a very different group of students (at-risk incoming undergraduates) was successful and bodes well for the workshop's compatibility with other groups in the future.

In Conclusion: Lessons and Caveats

While we consider the three-session workshop model to have been successful, several aspects of the Bridge program workshop series created a challenge. Primarily, the increased number of workshops and assessment instruments were labor-intensive and required significant planning and human resources to execute effectively. While perhaps the research team should have expected some absenteeism, selected students' failure to attend all three workshop sessions necessitated eleventh-hour adjustments to data collection and analysis strategies. Because one of the primary objectives of the workshop design was to demonstrate the effectiveness of students' attending a series of workshops, team members had to discard surveys completed by students who did not attend all three sessions. The attempt to assign anonymous identifiers to each student (month and day of birth) was only partly successful, making it necessary to discard some of the individual assessments to track only students who had participated in all three sessions. For the 2013 sessions, each student was assigned a "code word" at random, but it was still necessary to remove the responses of students who did not participate in all sessions. In the interest of consistency, a single instructor taught all twelve sessions (three sessions, four course sections) for the Bridge group. This approach eliminated one variable, but it also monopolized the instructor for the duration of the workshops. Although having sessions taught by several instructors would confound the project, distributing the teaching load between two or three instructors might be advisable.

Nevertheless, partnering with both the Bridge and PEER programs was an excellent decision. Providing instruction for these two groups allowed us to actively support two major priorities of the University of Tennessee: facilitating undergraduate student success and supporting graduate students, especially those from underrepresented groups.⁵² Working with structured, discrete programs significantly reduced the number of contacts needed to coordinate the sessions, thereby streamlining communication, planning, and assessment. In addition, the program coordinators were responsible for assessing the effectiveness of their respective programs and appreciated access to the library instruction workshop assessment data. In turn, the Bridge program coordinator facilitated continued "checking in" with participants after the conclusion of the summer program. This approach could be leveraged further into a long-term and comprehensive study of the impact of early intervention library instruction on specific students' academic trajectory.



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